



The Emily manganese ore deposit Fact sheet on the project As of December 2014

The Emily Manganese Deposit

É A rich deposit of manganese and iron in North America is located on a privately owned site in Emily, Minn.

É Most of the manganese currently used in the U.S. is imported; the US has sold off most of its stockpile.

É Manganese is becoming very important and necessary in the near future.

É Manganese is a very valuable metal that historically has been used in the steelmaking industry. Today it is an important part of potentially environmentally friendly technologies including power plant emissions reduction, air and water pollution abatement, water purification, and rechargeable and storage batteries.

É Cooperative Mineral Resources (CMR), a subsidiary of Crow Wing Power (an electric cooperative serving 37,000 members with electricity in central Minnesota), purchased 80 acres of land with a total of 180 acres of mineral rights in late 2008 containing the manganese/iron deposit and is working to develop the best extraction plan.

ó Foreign investors wanted to purchase the site. That's why Crow Wing Power stepped in to protect local interests.

É A demonstration extraction project underwent state and U.S. regulatory agency environmental reviews and public comments.

É The ultimate goal of the project is to develop a natural resource for the benefit of the local economy, the members of CWP and the State of Minnesota and to supply electrolytic manganese metal (EMM) to the steel industry and electrolytic manganese dioxide (EMD) to the battery industry.

Deposit Details
2013 Barr Estimates

Mn Cutoff % Grade	Geology	Tons	Avg Mn %	Avg Fe %
1	Upper Zone	3,960,000	6.8	28.66
1	Lower Zone	8,220,000	10.35	25.61
Total		12,180,000	9.20	26.60
5	Upper Zone	2,090,000	10.31	32.31
5	Lower Zone	6,320,000	12.52	24.62
Total		8,410,000	11.97	26.53
10	Upper Zone	850,000	14.91	32.78
10	Lower Zone	3,470,000	16.87	22.97
Total		4,320,000	16.48	24.91

The Barr estimate was carried out for manganese plus two elements of interest (iron and silica) by the inverse distance method in Vulcan mine planning software. The results of this estimate are tabulated above, using 1, 5, and 10% Manganese (Mn) weight percentage cut offs.

- In May 2013, Barr Engineering Co. (öBarrö) of Minneapolis, Minnesota, completed a report entitled “*Mineral Resource Report on the Emily Manganese Project Minnesota*”. The report compiled available historic data and modern data from the CMR work to produce an historic estimate of manganese mineralization at the Emily deposit. Based on the report, the deposit ranges from 1.4 billion pounds of contained manganese grading at 16.48% Mn at a cut-off grade of 10% Mn, to 2.2 billion pounds of contained manganese grading at 9.2% Mn at a cut-off grade of 1% Mn.

The following additional information required when reporting historic estimates is provided below:

- The 2013 historic estimate by Barr incorporates drilling results from three separate drilling programs; the first from October 1945 to June 1950, the second in September and October 2011, and the third in October and November 2012 for a total of 20 drill holes totaling 8,861 feet.
- The historic estimate relies on earlier reports, namely Pahlman 1996, Marston 2008, and Barr 2012.
- The historic estimate relied on Barr checking, validating and updating the Emily assay and geological database.
- The historic estimate relied upon a comprehensive Quality Assurance/Quality Control program involving the use of blanks, standards and field duplicates that was instigated by Barr.
- Barr did not assign categories to the historic estimate and a comparison to NI43-101 categories is not possible.

Additional in-fill and exploratory drilling may be required to upgrade the status of the Barr historic estimate to that of a current mineral resource or mineral reserve.

The Company cautions that a qualified person (within the meaning of NI 43-101) has not done sufficient work to classify the historic estimate as current mineral resources or mineral reserves and should not be relied upon until they have been verified and supported by a compliant NI 43-101 technical report.

CMR successful in the production of Electrolytic Manganese Dioxide (EMD) and Electrolytic Manganese Metal (EMM) in 2014.

CMR has undertaken extensive work including exploration core drilling, bulk sampling at Emily and mineralogical and metallurgical testing at recognized analytical laboratories, and has been successful in producing EMM and EMD from samples taken at Emily.

Extraction process from 2011 demonstration

É Cooperative Mineral Resources used a borehole extraction tool using existing groundwater, an environmentally friendly technique, to extract the manganese and iron.

In addition, since our initial demonstration project is now complete and under study, we may add some additional techniques for extraction as we move toward an Environmental Impact Statement for a commercial operation.

CURRENTLY –In December 2014, CMR signed a Memorandum of Understanding with Star Minerals Group and Octopus Technologies, Inc. to move the project forward with the intent to utilize a mine to market strategy with the ultimate goal of producing green storage manganese based batteries. To view the press release from Star, [click here](#).

É Cooperative Mineral Resources is continuing its progress on the Emily deposit becoming NI 43-101 compliant. We will complete that study and work with investors and regulatory agencies to determine what our best practices will be if we move toward a commercial project.

- ó The goal is to assess and refine the extraction technology and process, help ensure that the highest environmental standards are met, and determine the viability of a commercial operation.

Benefits to Emily and the region

É Crow Wing Power protected this opportunity for Minnesota and has made sure Emily and the surrounding community benefit from this Minnesota natural resource. The investment was made with the proceeds obtained from a lucrative investment we sold in 2006, specifically the sale of Hunt Technologies in Pequot Lakes Minnesota.

É Crow Wing Power is a nonprofit company that is committed to using domestic companies to complete the project.

É Crow Wing Power members and the local community will directly share in the project's proceeds.

É Crow Wing will make sure this project meets the highest possible standards, because the company is part of this community

É The project creates important new tax revenue) for Emily, Crow Wing County, the local school district, and the state of Minnesota.

É Upon completion of the project, Crow Wing Power will restore the site.
